

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

#3/A
9/1/01
5/4/01

In re the Application of: Hassan S. Hashemi)
Serial No.:)
Filed:)
For: Leadless Chip Carrier Design and Structure)

Examiner:

Group Art Unit:

This is a Rule 1.53(b) continuation of pending
U.S. Application Serial No. 09/252,851
filed February 17, 1999 and assigned to the
assignee of the present application.

PRELIMINARY AMENDMENT TO CONTINUATION APPLICATION

Honorable Commissioner of
Patents and Trademarks
Washington, D. C. 20231

Dear Sir/Madam:

This amendment is directed to the accompanying 37 CFR §1.53(b) continuation application. The parent application Serial No. 09/252,851, filed February 17, 1999 has received a Notice of Allowance and is in Class 257, Subclass 706.000 in Art Unit 2815. Please enter the following amendments in the present §1.53(b) continuation application.

In the Specification:

Specification.

After the title, please insert the sentence: - This is a continuation of application Serial No.

09/252,851 filed February 17, 1999.

On page 6, line 25, please replace "vias 260" with --vias 250--.

In the Claims:

Please cancel claims 1-17.

Please add the following new claims:

~~--18.~~ A structure comprising:

a substrate having a top surface for receiving a chip;

a printed circuit board attached to a bottom surface of said substrate;

at least one via in said substrate;

said at least one via providing an electrical connection between a device electrode of said chip and said printed circuit board.--

--19. The structure of claim 18 wherein said chip is a semiconductor chip.--

--20. The structure of claim 18 wherein said substrate comprises organic material.--

103
12 --21. The structure of claim 20 wherein said organic material is selected from the group consisting of polytetrafluoroethylene material and an FR4 based laminate material.--

--22. The structure of claim 18 wherein said substrate comprises a ceramic material.--

msB3
00511-11000
~~--23. The structure of claim 18 wherein said at least one via provides an electrical connection between a bond pad and said printed circuit board, wherein said bond pad is electrically connected to said device electrode.--~~

--24. The structure of claim 23 wherein said at least one via abuts said bond pad.--

--25. The structure of claim 23 wherein said bond pad is electrically connected to said device electrode by a bonding wire.--
2224

msB3
~~--26. The structure of claim 18 wherein said at least one via provides an electrical connection between said device electrode and a land, said land being electrically connected to said printed circuit board.--~~

--27. The structure of claim 26 wherein said at least one via abuts said land.--

Handwritten: A2 sub B3
A2 CON 15

--28. The structure of claim 18 wherein said at least one via provides an electrical connection between a bond pad and a land, wherein said bond pad is electrically connected to said device electrode, and wherein said land is electrically connected to said printed circuit board.--

--29. The structure of claim 28 wherein said at least one via abuts said bond pad and said land.--

--30. The structure of claim 28 wherein said bond pad is electrically connected to said device electrode by a bonding wire.--

--31. The structure of claim 29 wherein said bond pad is electrically connected to said device electrode by a bonding wire.--

Handwritten: sub B4

--32. The structure of claim 18 wherein said at least one via comprises copper.--

--33. The structure of claim 18 wherein said at least one via comprises a thermally conductive material.--

--34. A structure comprising:

a substrate having a top surface and a bottom surface;

a semiconductor chip attached to said top surface of said substrate;

a heat spreader attached to said bottom surface of said substrate;

12
a first via in said substrate;

said first via providing a connection between said semiconductor chip and said heat spreader.--

--35. The structure of claim 34 wherein said heat spreader is attached to a printed circuit board.--

--36. The structure of claim 34 wherein said heat spreader is an electrical conductor.--

--37. The structure of claim 36 wherein said heat spreader is attached to a printed circuit board by solder.--

--38. The structure of claim 34 wherein said heat spreader is a thermal conductor.--

--39. The structure of claim 38 wherein said heat spreader is attached to a printed circuit board by solder.--

--40. The structure of claim 34 wherein a second via in said substrate provides a connection between a device electrode of said semiconductor chip and a printed circuit board.--

A2
--41. The structure of claim 34 wherein said first via provides an electrical connection between said semiconductor chip and said heat spreader.--

--42. The structure of claim 40 wherein said first via provides an electrical connection between said semiconductor chip and said heat spreader.--

--43. The structure of claim 34 wherein said first via provides a thermal connection between said semiconductor chip and said heat spreader.--

--44. The structure of claim 40 wherein said first via provides a thermal connection between said semiconductor chip and said heat spreader.--

--45. The structure of claim 34 wherein said substrate comprises organic material.--

--46. The structure of claim 45 wherein said organic material is selected from the group consisting of polytetrafluoroethylene material and an FR4 based laminate material. --

--47. The structure of claim 34 wherein said substrate comprises a ceramic material.--

2
--48. The structure of claim 40 wherein said second via provides an electrical connection between a bond pad and said printed circuit board, wherein said bond pad is electrically connected to said device electrode.--

--49. The structure of claim 48 wherein said second via abuts said bond pad.--

--50. The structure of claim 48 wherein said bond pad is electrically connected to said device electrode by a bonding wire.--

00511-1131-00
--51. The structure of claim 40 wherein said second via provides an electrical connection between said device electrode and a land, said land being electrically connected to said printed circuit board.--

--52. The structure of claim 51 wherein said second via abuts said land.--

--53. The structure of claim 40 wherein said second via provides an electrical connection between a bond pad and a land, wherein said bond pad is electrically connected to said device electrode, and wherein said land is electrically connected to said printed circuit board.--

--54. The structure of claim 53 wherein said second via abuts said bond pad and said land.--

12
--55. The structure of claim 53 wherein said bond pad is electrically connected to said device electrode by a bonding wire.--

--56. The structure of claim 34 wherein said first via comprises copper.--

--57. The structure of claim 40 wherein said second via comprises copper.--

COPIES
--58. A structure comprising:
a substrate having a top surface and a bottom surface;
a semiconductor chip attached to said top surface of said substrate;
a heat spreader attached to said bottom surface of said substrate;
a first plurality of vias in said substrate;
said first plurality of vias providing a connection between said semiconductor chip and said heat spreader.--

--59. The structure of claim 58 wherein said heat spreader is attached to a printed circuit board.--

sub 57
--60. The structure of claim 59 wherein a second plurality of vias in said substrate provide connections between a plurality of device electrodes of said semiconductor chip and said printed circuit board.--

17 sub 80
conc 12
--61. The structure of claim 58 wherein said first plurality of vias provide an electrical connection between said semiconductor chip and said heat spreader.--

--62. The structure of claim 58 wherein said first plurality of vias provide a thermal connection between said semiconductor chip and said heat spreader.--

--63. The structure of claim 60 wherein said second plurality of vias provide electrical connections between a plurality of bond pads and said printed circuit board, wherein each of said plurality of bond pads is electrically connected to a respective one of said plurality of device electrodes.--

--64. The structure of claim 60 wherein said second plurality of vias provide electrical connections between each one of said plurality of device electrodes and a respective one of a plurality of lands, said plurality of lands being electrically connected to said printed circuit board.--

--65. The structure of claim 58 wherein said first plurality of vias comprise copper.--

--66. The structure of claim 60 wherein said second plurality of vias comprise copper.--

REMARKS

This is a Rule 1.53(b) continuation application of the parent application, Serial No. 09/252,851, filed February 17, 1999. The parent application has received a Notice of Allowance of claims 1-17 in the parent application. This continuation application is filed during the pendency of the parent application. By this preliminary amendment, applicant has canceled claims 1-17 (which were allowed in the pending parent application) and has added new claims 18-66. No new matter has been introduced in the present continuation application. Accordingly, claims 18-66 remain in the present Rule 1.53(b) continuation application. Consideration and examination of pending claims 18-66 is respectfully requested.

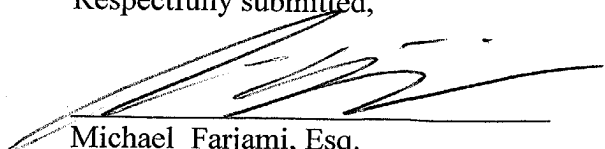
A true and correct copy of the parent application, including the specification, drawings and claims, as originally filed, is enclosed. Also enclosed is a true and correct copy of the declaration as filed in the parent application. Applicant has also enclosed formal drawings corresponding to the original filed drawings. It is noted that in the enclosed formal drawings, Figure 1 has been amended to include the label "Prior Art" as requested by the Examiner in the pending parent application.

Moreover, Applicant has enclosed a "Revocation and Power of Attorney" to formalize the fact that the attorneys in the present continuation application are different from the attorneys of record in the pending parent application. The Examiner is respectfully requested to take note of the "Revocation and Power of Attorney" and direct all correspondence to the undersigned attorney in the present continuation application whose address and phone number appear below.

Respectfully submitted,

Date: 11/15/00

Michael Farjami, Esq.
FARJAMI & FARJAMI LLP
16148 Sand Canyon
Irvine, California 92618
(949) 784-4600


Michael Farjami, Esq.
Reg. No. 38,135

"EXPRESS MAIL" mailing label number

EL659311809US

Date of Deposit 11-15-2000

I hereby certify that this paper is being deposited with the United States
Postal Service "Express Mail Post Office to Addressee" service under 37
C.F.R. §1.10 on the date indicated above and is addressed to the
Commissioner of Patents and Trademarks, Washington, D.C. 20231, on

(Signature)

(Typed or Printed Name of Person Mailing Paper or Fee)

Sara Ansari
Sara Ansari

00511-11809US